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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,453	02/28/2002	Linqiu Cao	219425US0	4985

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EXAMINER

TRAN, THAO T

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/084,453

Applicant(s)

CAO ET AL.

Examiner

Thao T. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2005.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 23-44 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 1 and 23-38 is/are allowed.
6) ☒ Claim(s) 39-44 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/22/2005 has been entered.
2. Claims 1, 22-44 are currently pending in this application. Claims 2-21 have been canceled. Claims 22-44 have been newly added.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 39-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Margolin et al. (US Pat. 6,359,118).

Margolin teaches crosslinked enzyme (glycoprotein) aggregates (crystals) and a method of preparing (see abstract); the method comprising providing a plurality of enzyme molecules

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(glucose oxidase); aggregating the enzyme molecules by a precipitating agent (polyethylene glycol) (see col. 17, ln. 51-52; Example 2); crosslinking the aggregated enzyme molecules to one another with a crosslinking agent (see col. 9, ln. 1-10).

Margolin further teaches the enzymes to be lipase, esterase, or protease (see col. 8, ln. 28-34). The crosslinking agent is a combination of glutaraldehyde and a diaminoalkane (diaminooctane) (see col. 25, ln. 67, bridging col. 26, ln. 3), that can be used to crosslink a protein molecule to another protein molecule (see col. 5, ln. 35-37).

Margolin further teaches the enzyme crystals being combined with solid carrier materials (see col. 11, ln. 5-6, 25-26; col. 12, ln. 16-17). Although Margolin is silent with respect to the enzyme crystals being crosslinked with the carrier and that the adhehyde groups in the crosslinker spaced further apart than the adhehyde groups in glutaraldehyde, since the reference teaches the same enzyme crystals with the same crosslinking agent to the presently claimed invention, the reference's enzyme crystals would inherently be crosslinked to the carrier and the spacing of the adhehyde groups in the crosslinker and in glutaraldehyde would inherently be the same as that in the presently claimed invention.

Allowable Subject Matter

5. Claims 1 and 22-38 are allowed.
6. The following is a statement of reasons for the indication of allowable subject matter: no prior art has been found to teach, disclose, or fairly suggest a crosslinked enzyme aggregate and method of making, the method comprising providing a crosslinking agent, wherein the

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crosslinking agent is prepared by combining a second compound and a first compound in a molar ratio of 10-1:1; in combination with all of the other limitations of claim 1.

Response to Arguments

7. Applicant's arguments filed July 26, 2004 have been fully considered but they are not persuasive.

Throughout the Remarks, Applicants contend that in the presently claimed invention, the crosslinker is used as a spacer between enzyme molecules to form enzyme aggregates, whereas in the invention of Margolis, the enzyme crystals are obtained by crosslinking the crystals through one or more carbohydrate moieties on or through the amino acid side chain in the glycoprotein. However, as pointed out in paragraph 4 above since Margolis uses the same crosslinker and enzyme crystals, the results would inherently be the same as presently claimed.

Note: The examiner called to suggest the cancellation of claims 39-44 in order to put the application in condition for allowance, but Applicants' representative did not call back.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao T. Tran whose telephone number is 571-272-1080. The examiner can normally be reached on Monday-Friday, from 9:00 a.m. - 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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May 27, 2005


THAO T. TRAN
PATENT EXAMINER